



## Creating Plan and Profile Sheets

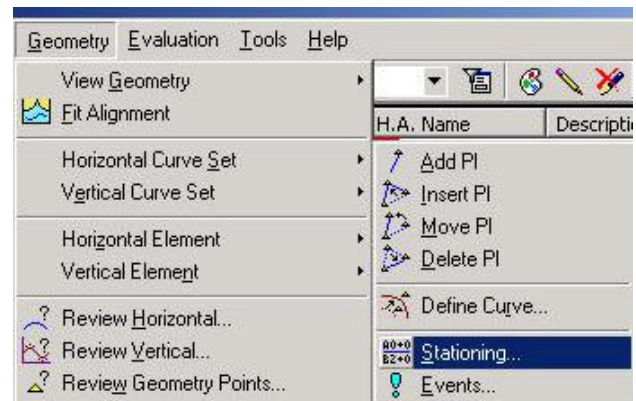
SelectCAD offers a plan and profile generator. The generator is a combination of 7.01's Place Profile Drawing Views and Draftworks ability to create the plan view panels. SelectCAD's generator takes both of those commands one step further. It allows the user to actually create the plan and profile sheets, not just the main elements. While it is complicated to get everything setup initially, it becomes much easier once all of the preliminary work is done. What used to take a tech 2-3 days to do can now be done in less than ½ hour.

- 1) The first task to complete is to display the horizontal and vertical alignments. Create a new design file in the \roadway\ directory named **68990desFR.dgn** (as per MCDOT Drafting Standards Chap. 3, Page 4).

/ After reviewing the as-builts, it was discovered that the stationing we are tying this project into is **23+516.786** and not the default 0+000.000. We will need to make the change before continuing with the project.

- 2) Select **Geometry>Horizontal Curve Set>Stationing**.

? The *Stationing* dialog box appears.



- 3) Verify that **51st exist** is the horizontal alignment selected and enter **23516.786** in the Starting Station dialog box.

- 4) Check **Synchronize Starting Stations** in the **Vertical and Superelevation Alignments** area.

- 5) Click **Apply** followed by **Close** to exit the command.



- 6) With the stationing correct, we can now display the horizontal alignments and the stationing associated with this project.

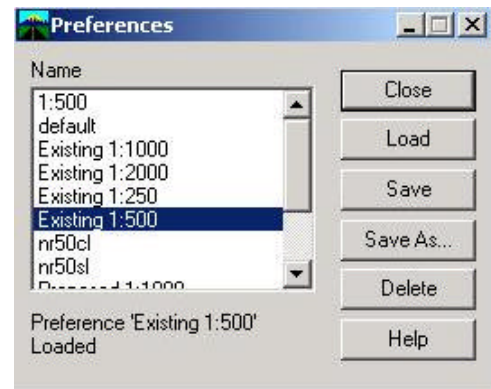
- 7) Select **View Geometry>Horizontal Annotation**.

? *The View Horizontal Annotation dialog box appears.*



- 8) Click on **Preferences...** on the bottom of the dialog box.

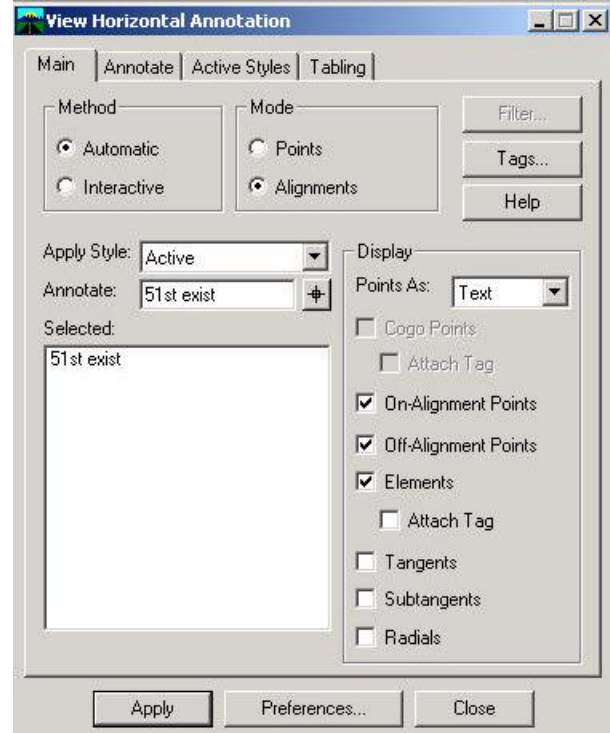
? *The Preferences dialog box appears.*



- 9) Highlight **1:500** and click **Load**, followed by **Close** to exit the dialog box.

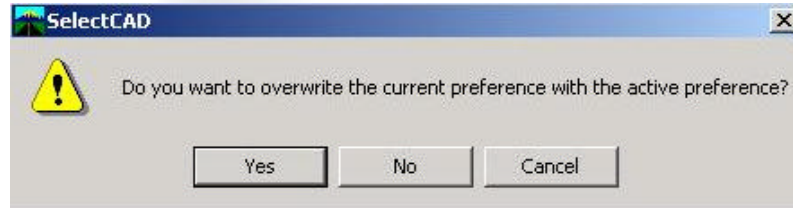
/ By loading the preferences, there are no settings that need to be manipulated. It was only necessary to load these preferences because we are not using the proposed preferences for this command. The proposed preferences automatically load with this command (as with any other that the preference exists for).

- 10) In the **Annotate** data field, type in **51st exist** and click **Apply** from the bottom of the dialog box.





- 11) SelectCAD will prompt if the current preferences should be overwritten with the active ones. Click on **Yes**. This is due to the configurations of the preferences. SelectCAD is not making any changes to the preferences, but only using scaling preferences specific to this command in-lieu of the default preferences.

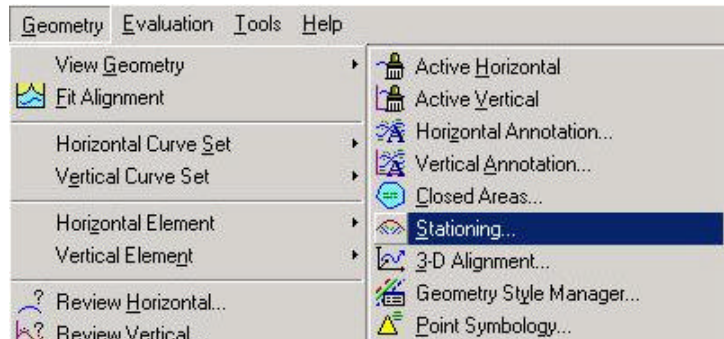


? The **View Horizontal Annotation** dialog box will quickly minimize and restore when the command is complete.

- 12) Click on **Close** from the bottom of the dialog box to exit out of the command.

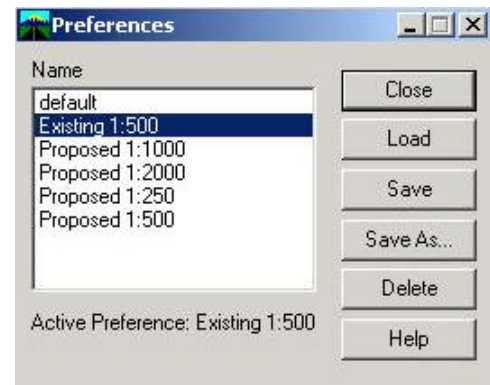
- 13) Select **Geometry>View Geometry>Stationing...**

? The **Stationing** dialog box appears.



- 14) Click on **Preferences** from the bottom of the dialog box.

? The **Preferences** dialog box appears.



- 15) Highlight **Existing 1:500** and click on **Load**, followed by **Close** from the right side of the dialog box.



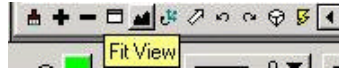
16) From the **Horizontal Alignment** pull-down, select **51st exist**.

17) Click on **Apply** from the bottom of the dialog box.

? The dialog box will quickly minimize and restore when the display is complete.

18) Click on **Close** to exit the command.

19) From the bottom-left corner of the MicroStation view window, select **Fit View**.

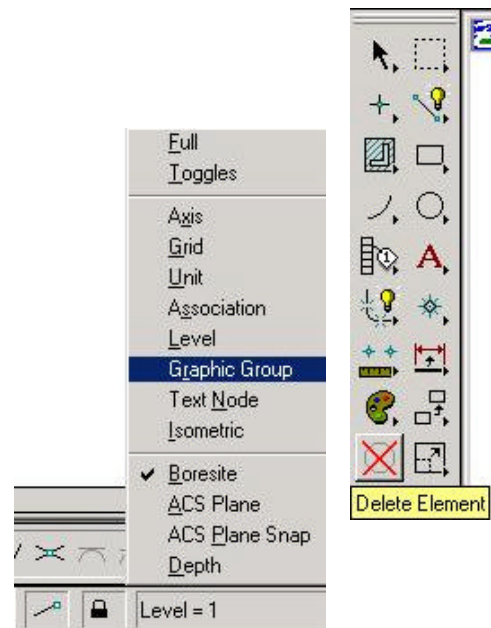
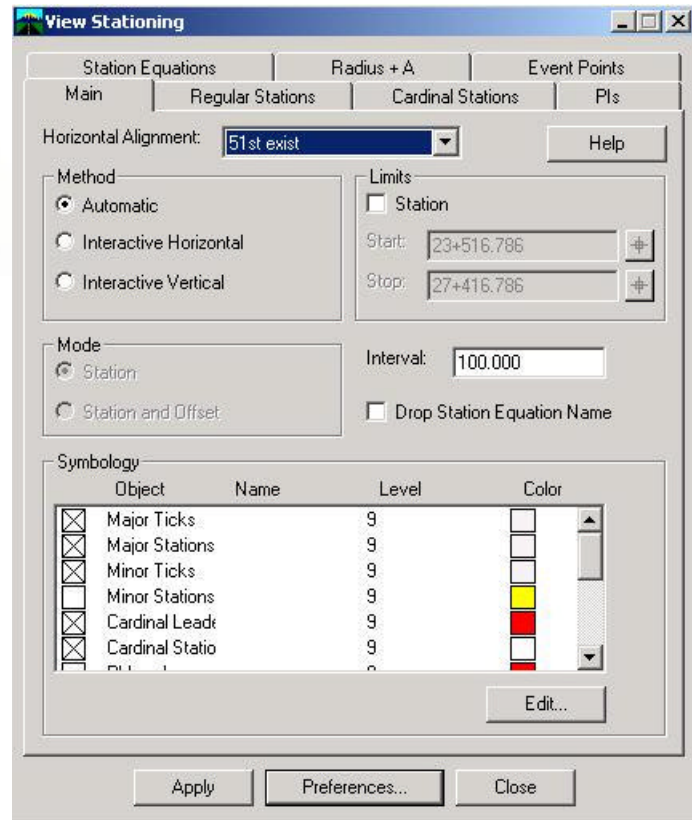
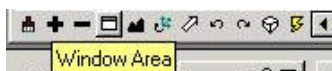


20) From the MicroStation **Main** toolbar, select **Delete Element**.

21) Data click in the lower-right corner of the MicroStation window to bring up the locks pop-up.

22) Toggle off **Graphic Group** (verify that the check mark is not present).

23) Select **Window Area** from the bottom-left of the MicroStation view window (holding the <SHIFT> and right clicking yields the pop-up to the right).





24) Zoom into the beginning of the alignment.

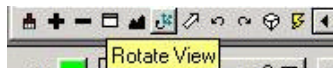
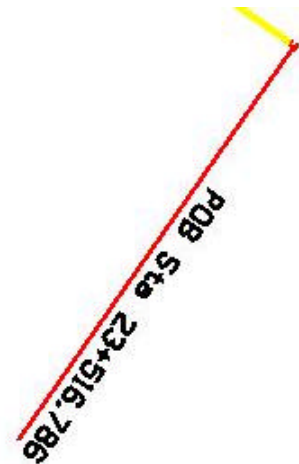
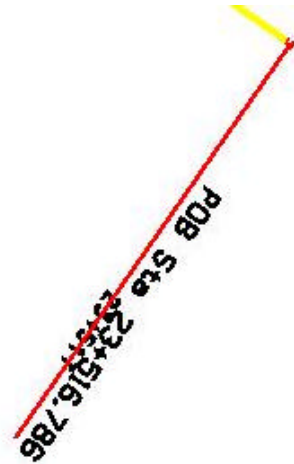
25) Data click on the major stationing (**23+517**). If the desired text is not highlighted, right-click (reset) to make another selection in the same area. Continue to do this until the major stationing is selected and data click once more in an empty area in the design file to delete the object.

26) Use the **Fit View** (or **View Previous**) command to view the entire alignment and zoom into the area of the end of the project.

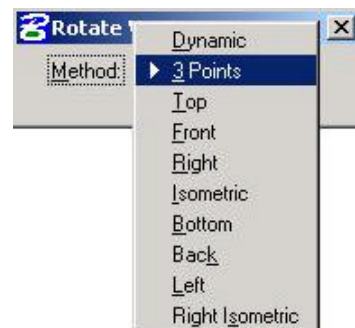
27) Delete the major stationing associated with the end of the project.

28) Once again, use the **Fit View** to view the entire project.

29) Select **Rotate View** from the same area as the other view commands.



30) Change the **Method** to **3 Points**.



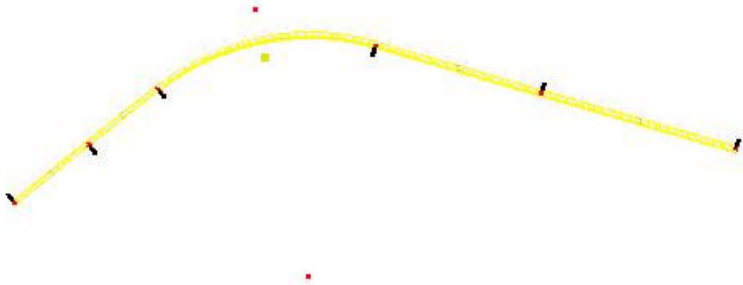


31) Data-click in an area near the beginning of the project and once again at the end of the project.


/ This creates an x-axis that MicroStation will use to rotate the view. The first point picked will serve as the x-axis origin point. By picking above the line just created, the new view will be based on the top view. If a point is picked below the line, the view will be based on the bottom view, appearing to be “upside down”.

32) Data click above the line just created.

33) Select **Fit View** to encompass the entire project based on the new view.



34) Using the tentative mouse button (middle button, or both left and right simultaneously), click in an empty area of the design file. MicroStation will display the information on the point chosen. If the last number is not 0.000 or -0.000, the “active z” of the design file has changed.

 10474.353, 9653.413, -15.489

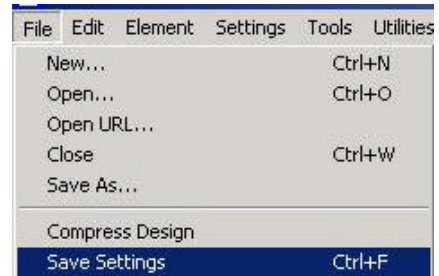
35) To remedy this problem, type in **az=0** into the MicroStation Key-In and data click in the window.



/ MicroStation will display the results of the command in the bottom-left corner of the MicroStation window.

View 1: Active Depth=-0.000

36) From the MicroStation menu, select **File>Save Settings** (holding down <CTRL> while pressing the “F” key yields same result).



37) Select **File>New...** from the MicroStation menu (using the metric seed file for MCDOT).

38) Name the new file **68900proRF.dgn** (as per MCDOT Drafting Standards Chap. 3, Page 4), and verify the directory as \Roadway\.

39) Select **Place Line** from the **Linear Elements** toolbar.



40) Hit <ESC> to make the key-in active and type in “xy=7200, 13500, 0”



/ This command is used to place elements at the exact x, y, z coordinate following the equal sign. It is necessary to identify the exact location of the profiles to save future complications due to the referencing of this file in the plan and profile sheets.

xy=7200,13500,0  
Stations: 23+516.786 to 27+413.786  
Elevations: 10 METERS

If this point is not identified and the profile is deleted, the sheets would have to be re-created. If this point is identified, only the profiles which were deleted would have to be re-created vs. all the plan and profiles.

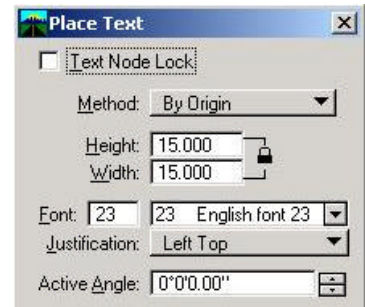
41) With the first endpoint placed, place the other end of the line approximately 225 degrees from the first one.



42) Select the **Place Text** command from the **Text** toolbar.



43) Set the **Height** and **Width** to **15.000**, **Font** style of **23**, and the justification to **Left Top**.



44) Type in the following:

**Xy=7200, 13500, 0**

**Stations: 23+500.000 to 27+500.000**

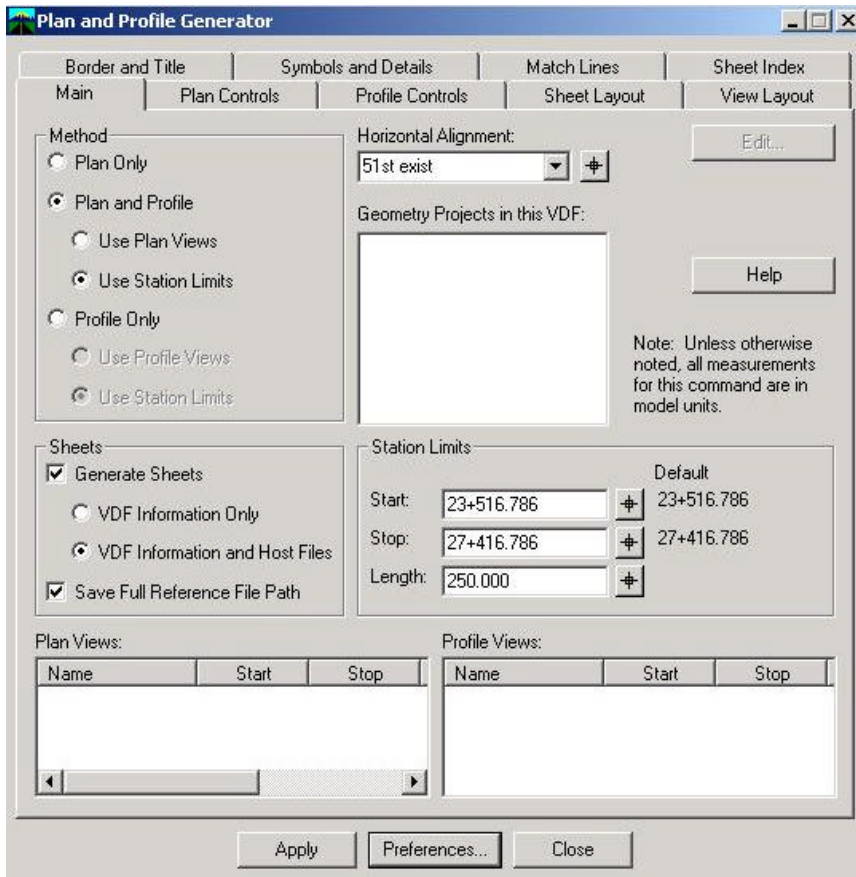
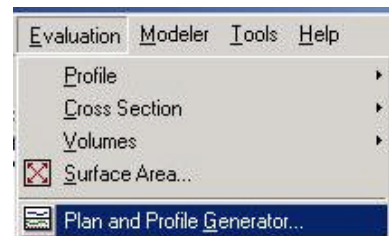
**Elevations: 10 Meters**

and place the text to the left of the line placed earlier.

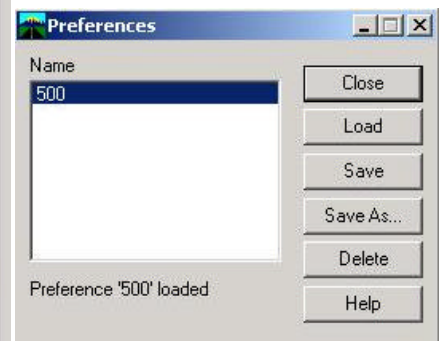


45) From the SelectCAD menu, select **Evaluation>Plan and Profile Generator**.

? *The Plan and Profile Generator dialog box appears.*



46) Click on **Preferences...** located at the bottom of the dialog box and load **500**.





- / Although almost all settings are completed, we shall go over all of the pertinent information and settings on each tab. Each tab is divided into sections, or areas. Each area has individual toggles and settings that effect the overall command.

- / **Main Tab.** The **Main** tab contains elements relevant to the general settings. **Method** allows the user to determine which type of sheets will be generated. On large interchange jobs, it may be necessary to have separate plan sheets. If Plan and Profile is selected (as in this case), the user has the option to either go by **Plan Views** generated, or by **Station Limits**. **Station Limits** will calculate the sheets using the **Length** from the **Start** station entered to the **Stop** station. The Plan Views setting is used after the sheets have been calculated.

**Plan and Profile Generator**

Border and Title | Symbols and Details | Match Lines | Sheet Index

Main | Plan Controls | Profile Controls | Sheet Layout | View Layout

Method:

- ☐ Plan Only
- ☒ Plan and Profile
  - ☐ Use Plan Views
  - ☒ Use Station Limits
- ☐ Profile Only
  - ☐ Use Profile Views
  - ☒ Use Station Limits

Horizontal Alignment: 51st exist [Edit...]

Geometry Projects in this VDF:

Help

Note: Unless otherwise noted, all measurements for this command are in model units.

Sheets:

- ☒ Generate Sheets
  - ☐ VDF Information Only
  - ☒ VDF Information and Host Files
- ☒ Save Full Reference File Path

Station Limits:

Start: 23+516.786 [Default: 23+516.786]

Stop: 27+416.786 [Default: 27+416.786]

Length: 250.000

Plan Views:

Name	Start	Stop
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Profile Views:

Name	Start	Stop
------	-------	------

Apply | Preferences... | Close

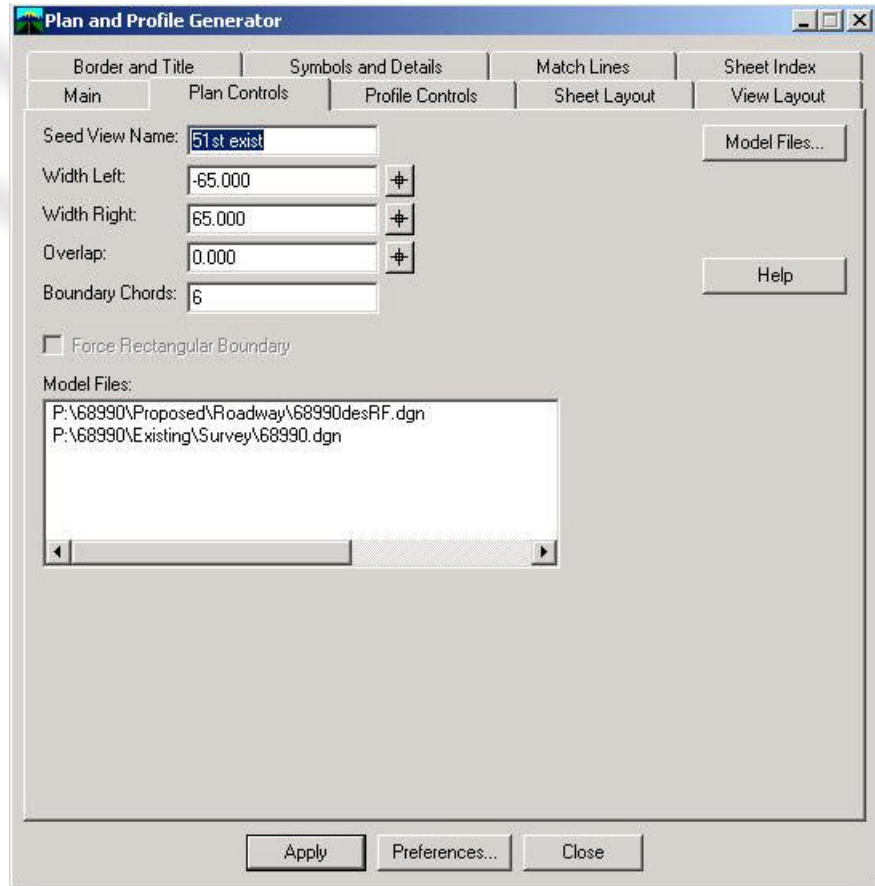
- / We are going to have SelectCAD generate the sheet information and then we can adjust it. This method must be used due to the odd starting station of this project.



47) Click on the **Plan Controls** tab.

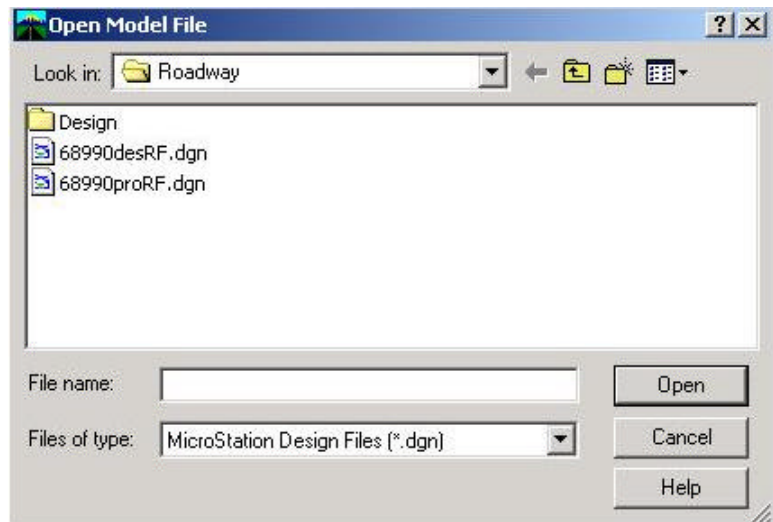
48) Click on the **Model Files** button.

/ The **Model Files** command will attach each file in the list to the plan view. Using this command, we will be able to list the survey, row, and utilities design files. All files that are going to be attached to the plan and profile sheets should be listed here. If they are not, there are ways to copy reference files (covered later).



? The **Open Model File** dialog box appears.

49) Change the directory to **P:\68990\Existing\Survey\** and open **51st.dgn**. Also open **P:\68990\Proposed\Roadway\68990desRF.dgn**.





- 50) Verify that the settings are the same as the image to the right, and click on **Apply**.

? *SelectCAD minimizes and prompts to **Identify Location**.*



- 51) Tentative on the upper end of the line created for the profiles and data click to accept the point.

**Plan and Profile Generator**

Border and Title | Symbols and Details | Match Lines | Sheet Index

Main | Plan Controls | Profile Controls | Sheet Layout | View Layout

Method:

- ☐ Plan Only
- ☒ Plan and Profile
  - ☐ Use Plan Views
  - ☒ Use Station Limits
- ☐ Profile Only
  - ☐ Use Profile Views
  - ☒ Use Station Limits

Horizontal Alignment: 51st exist [Edit...]

Geometry Projects in this VDF:

Help

Note: Unless otherwise noted, all measurements for this command are in model units.

Sheets:

- ☒ Generate Sheets
  - ☐ VDF Information Only
  - ☒ VDF Information and Host Files
- ☒ Save Full Reference File Path

Station Limits:

Start: 23+516.786 [Default: 23+516.786]

Stop: 27+416.786 [Default: 27+416.786]

Length: 250.000

Plan Views:

Name	Start	Stop
------	-------	------

Profile Views:

Name	Start	Stop
------	-------	------

Apply | Preferences... | Close

? *SelectCAD will lay out the profiles to be used in the plan and profile sheets.*

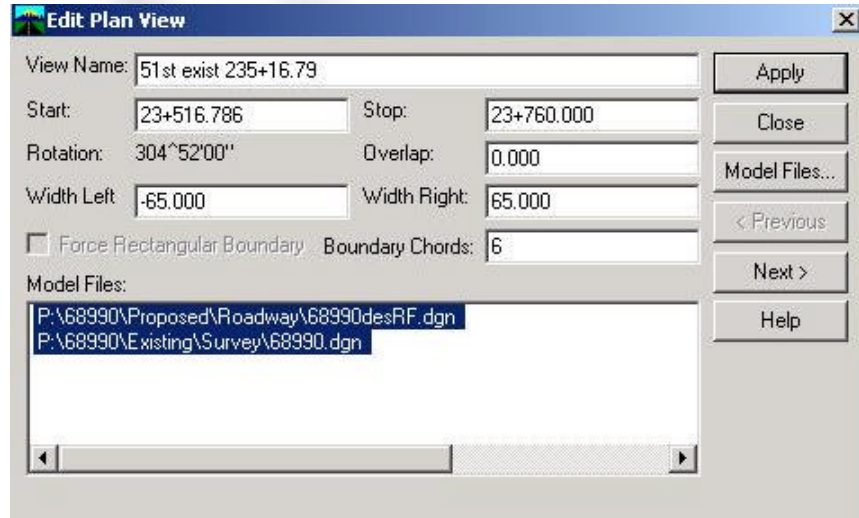
- 52) The **Plan** and **Profile Views** will be displayed on the bottom of the **Generator** dialog box.

Plan Views:			Profile Views:		
Name	Start	Stop	Name	Start	Stop
51st exist	23+516.786	23+766.786	51st exist	23+516.786	23+766.786
51st exist	23+766.786	24+016.786	51st exist	23+766.786	24+016.786
51st exist	24+016.786	24+266.786	51st exist	24+016.786	24+266.786
51st exist	24+266.786	24+516.786	51st exist	24+266.786	24+516.786

- 53) Double-click on the first entry in the **Plan Views:** data field.



? The **Edit Plan View** dialog box appears.



54) Change the **Stop:** station from **23+766.786** to **23+760.000** and click on **Apply**.

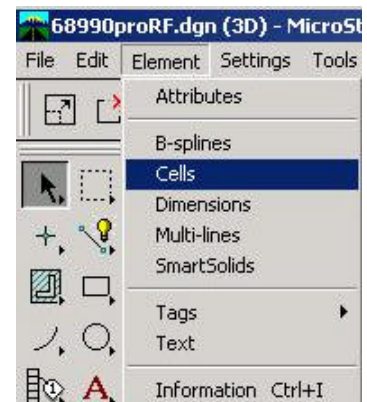
? The **Adjust Plan Views** dialog box appears.



55) Toggle the last option to adjust all views and click on **OK**. This option will change all views, including the profile views.

56) Click on **Close** to close the **Edit Plan View** dialog box.

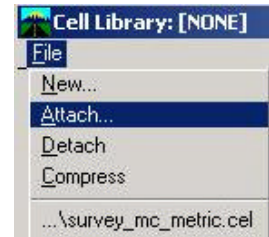
57) From the MicroStation menu, select **Element>Cells**.





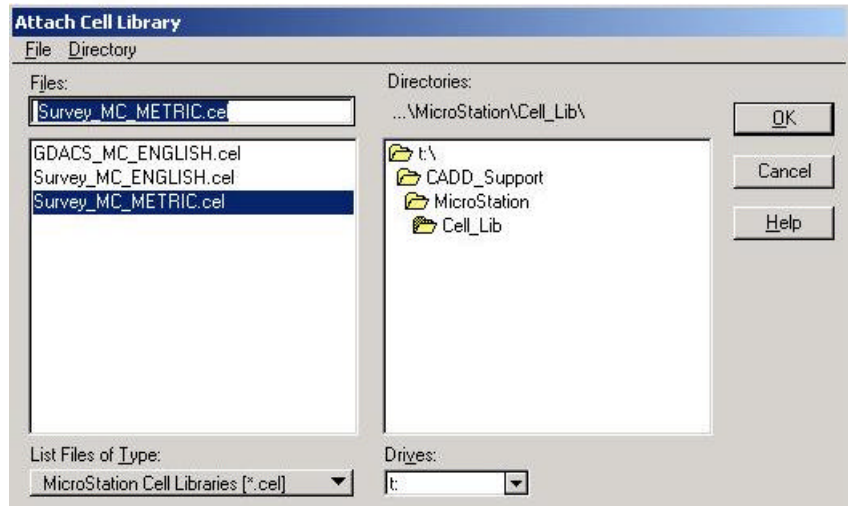
? The **Cell Library** dialog box appears.

58) Select **File>Attach...**



/ It is necessary to load the cell library when using the plan and profile generator. The generator will place the north arrow automatically in each file.

? The **Attach Cell Library** dialog box appears.



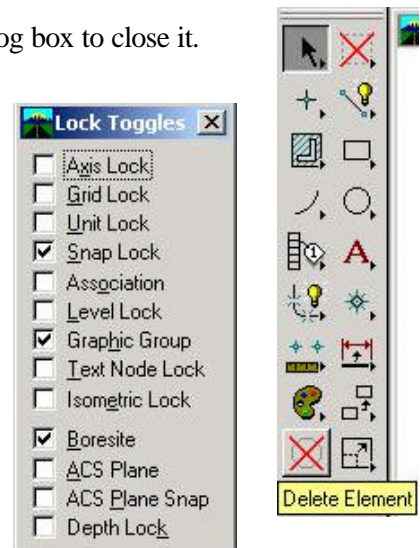
59) Change the directory to **T:\CADD\_Support\ MicroStation\Cell\_lib\** and double click on **Survey\_MC\_METRIC.cel**

60) Click on the “**X**” in the upper right corner of the **Cell Library** dialog box to close it.

61) From the MicroStation **Main** toolbar, select **Delete Element**.

62) Verify that the **Graphic Group** lock is on and delete all of the profile windows created.

/ The profile views will be recreated with new stationing based on the adjusted plan views.





63) From the **Plan and Profile Generator** dialog box, toggle the **Generate Sheets** option and make sure the **VDF Information** and **Host Files** is toggled. Change the **Plan and Profile** option to **Use Plan Views**.

64) Click on the **Profile Controls** tab.

65) Change the **Vertical Alignment** from none to **51st exist**.

/ The **Profile Controls** tab allows the user to make changes to the creation of the profiles and profile views that are referenced into each plan and profile sheet. The **Seed View Name** must match the **Seed View Name** that is on the **Plan Controls** tab in order for the generator to work correctly. The **Set Name** is used when multiple sets of profiles are to be used in the plan and profile

The screenshot shows the 'Plan and Profile Generator' dialog box with the 'Plan Controls' tab selected. The 'Method' section has 'Plan and Profile' selected, with 'Use Plan Views' and 'Use Station Limits' also checked. The 'Horizontal Alignment' is set to '51st exist'. The 'Geometry Projects in this VDF' list contains '51st'. The 'Sheets' section has 'Generate Sheets' checked, with 'VDF Information and Host Files' also checked. The 'Station Limits' section shows 'Start: 23+516.786', 'Stop: 27+416.786', and 'Length: 250.000'. The 'Plan Views' table is as follows:

Name	Start	Stop
51st exist 235+16.75	23+516.786	23+760.00
51st exist 237+60.00	23+760.000	24+010.00
51st exist 240+10.00	24+010.000	24+260.00
51st exist 242+60.00	24+260.000	24+510.00

The 'Profile Views' table is identical to the 'Plan Views' table. A note at the bottom right states: 'Note: Unless otherwise noted, all measurements for this command are in model units.'

The screenshot shows the 'Plan and Profile Generator' dialog box with the 'Profile Controls' tab selected. The 'Seed View Name' is '51st exist', 'Set Name' is '51st exist', 'Profile Preference' is '1:500', and 'Vertical Alignment' is '51st exist'. The 'Surface' section has '51st' selected. The 'Profile Elevation Shifts' section has 'Do Not Shift' selected. The 'Horizontal Spacing' section has 'Left to Left' selected with a 'Distance' of '400.000'. The 'Vertical Spacing' section has 'Bottom to Bottom' selected with a 'Distance' of '100.000'. The 'Profile Height' is '10.000' and 'Profiles per Column' is '1'. The 'Margins' section shows 'Top: 3.000', 'Bottom: 4.000', 'Left: 8.000', and 'Right: 8.000'. An 'Example' section shows a diagram of a profile view with a red arrow indicating the direction of the profile.



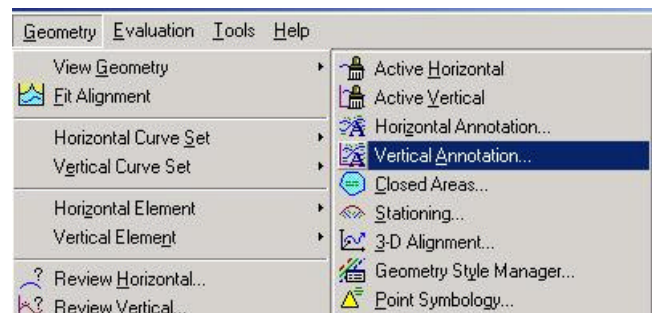
sheets. The **Profile Elevation Shifts** will shift the elevation of the individual profile window if the dtm or the vertical alignment will not fit the previous window parameters. The **Profile Height** refers to the elevation range to be covered in each window. The **Margins** setting determines the size of the reference boundary to be used for the profile in each plan and profile. The numbers (**Top, Bottom, Left, & Right**) represent the distance away from the specified side of the outside profile grid line. The **Horizontal** and **Vertical Spacing** are used to determine the distance between each profile window.

66) Click on **Apply** located on the bottom of the dialog box.

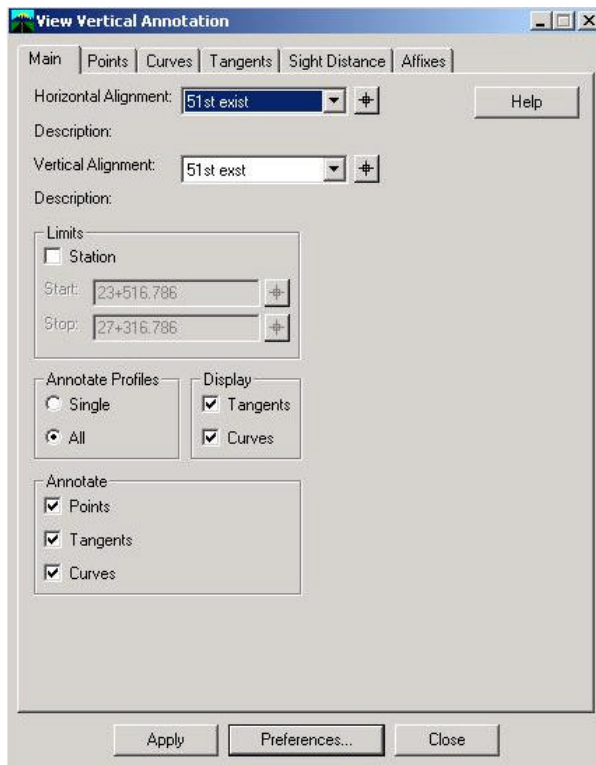
? *SelectCAD prompts to **Identify Location**.*



67) Tentative on the first endpoint of the line just created, and data click to accept the point.



68) Close the **Create Profile** dialog box.



69) Select **Geometry>View Geometry>Vertical Annotation...**

70) Verify the **Horizontal** and **Vertical Alignments** are **51st exist**.

71) Click on **Apply** from the bottom of the dialog box, followed by **Close** to exit the command.

/ All of the plan and profile sheets are now created and can be opened and edited from the **P:\68990\Plans\** directory.